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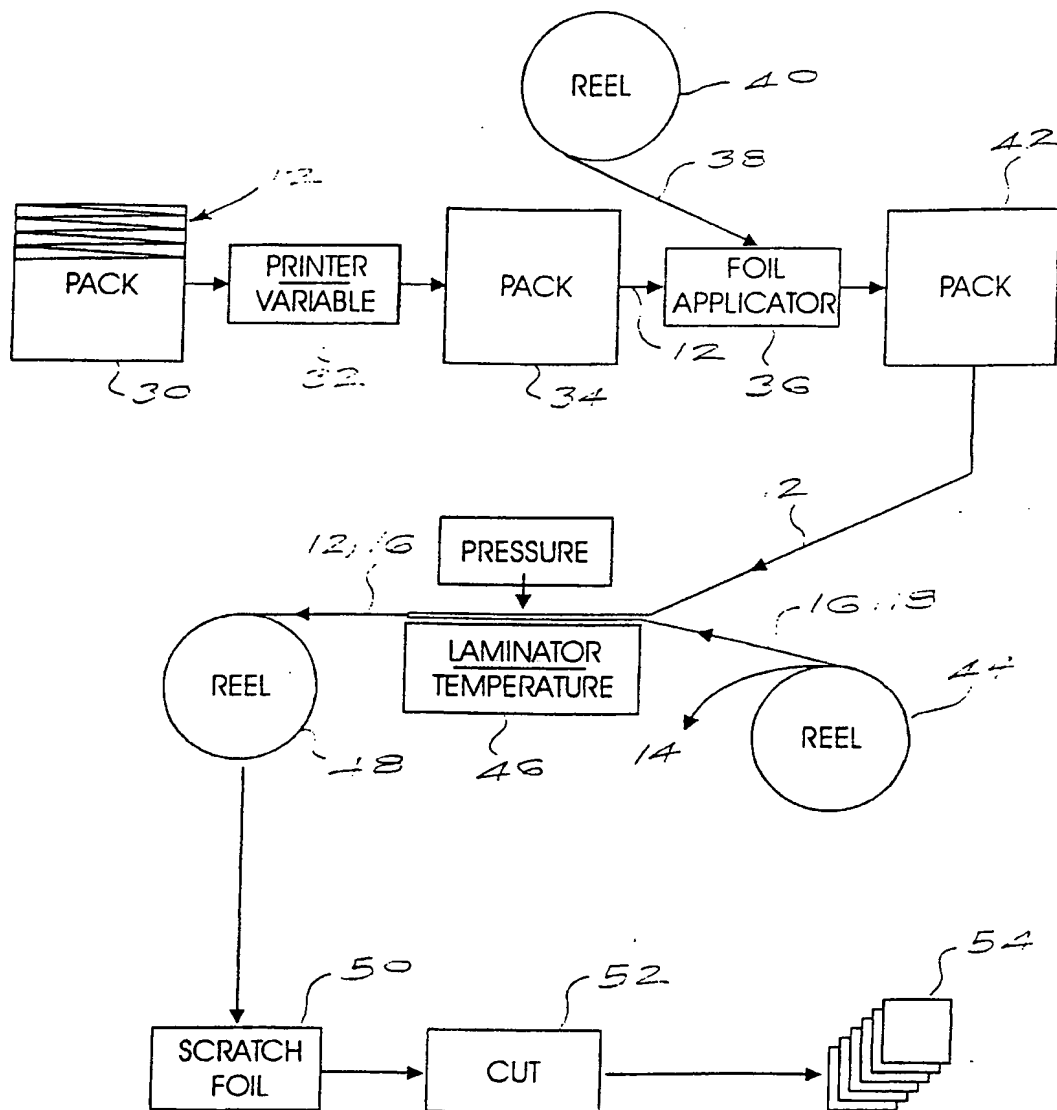
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54	MANUFACTURE OF SECURITY CARD				
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ABSTRACT

A security card which includes an information bearing carrier, a transparent laminate which is bonded to the carrier, over at least some of the information, by means of a heat-curable medium, and a scratch foil which is secured to the laminate to obscure at least some of the information.

ADVERTISEMENT DRAWING



BACKGROUND OF THE INVENTION

This invention relates generally to the manufacture of a security card.

As used herein the phrase "security card" includes a card, token, or other carrier which carries information which can be used to acquire value, whether  
5 as goods, services or in other form, or to obtain access to a location.

A typical use of a security card is as a prepaid voucher which, depending on the value associated with the security card, gives a user a corresponding amount of air time in a cellular telephone network.

10 In an existing security card known to the applicant an identity number is printed on a carrier and is covered by a transparent laminate which, in turn, is covered by means of a scratch foil. The foil can be removed, when appropriate, so that the number can be read and, depending thereon, a user can be given access time in a cellular network.

15 The laminate is bonded to the carrier by means of a contact adhesive. This type of adhesive does not set permanently and it is possible therefore, provided great care is exercised, to remove the laminate from the carrier, without damaging the laminate or the carrier. The identity number can then be ascertained and can be made use of unlawfully. The laminate can thereafter be replaced, ie. rebonded to the carrier, and the security card can

be sold to an innocent purchaser who will only learn later that the air time associated with the identity number has already been allocated.

#### SUMMARY OF INVENTION

5 The invention is concerned with the manufacture of a security card which addresses the aforementioned problem.

The invention provides, in the first instance, a method of making a security card which includes the steps of applying information to a carrier, and securing a laminate, over at least some of the information, to the carrier using a heat-curable medium.

10 The medium may be any suitable adhesive but, in a preferred form of the invention is a low density polyethylene adhesive.

The heat-curable medium may be carried by the laminate which, in turn, may be backed by carrier material. Once the laminate has been applied to the carrier the carrier material is detached from the laminate.

15 The laminate may be of any appropriate material and in one example of the invention the material is or includes ethyl vinyl acrylic.

The carrier material may include terra-phthalate.

5 The medium may be caused to cure by being exposed to a temperature in excess of 80°C. A suitable temperature is of the order of 100°C. Preferably pressure is simultaneously applied to the laminate and the carrier. This ensures that good bonding takes place between the laminate and the carrier and also helps to eliminate small folds or creases in the laminate and to displace small air bubbles which may be trapped between the laminate and the carrier.

The invention is also intended to extend to a security card made by the aforementioned method.

10 The invention further provides a security card which includes a carrier, information on the carrier, and a transparent laminate which is bonded to the carrier, over at least some of the information, by means of a heat-curable medium.

15 At least some of the information may be obscured by means of a foil, eg. a scratch foil, which is secured to the laminate.

#### BRIEF DESCRIPTION OF THE DRAWINGS

The invention is further described by way of example with reference to the accompanying drawings in which:

20 Figure 1 is a cross sectional view of a laminate which is applied to a document or carrier, and

Figure 2 is a schematic representation of a series of steps which are carried out in the making of a security card according to the invention.

#### DESCRIPTION OF PREFERRED EMBODIMENT

5 Figure 1 of the accompanying drawings illustrates in cross section, on a substantially enlarged scale, a laminate assembly 10 which is being applied to a document 12. The document may be paper or any other appropriate sheet material and is also referred to herein as a carrier.

10 The laminate assembly 10 includes carrier material 14, which may vary according to requirement and application but which, in this example, is terraphthalate with a thickness of the order of 75 microns. A sheet 16 of transparent ethyl vinyl acrylic, about 35 microns thick, is lightly adhesively attached to an underside of the carrier material.

A low density polyethylene adhesive 18 is applied to an underside of the sheet 16. The thickness of the adhesive is of the order of 15 microns.

15 Figure 2 illustrates a sequence of steps which are carried out in the manufacture of security cards.

20 The carrier or document 12, referred to in connection with Figure 1, is initially provided in bulk form eg. in the form of a folded continuous pack 30. The sheet material is fed through a printer 32 and variable information, which is predetermined according to criteria which are not important for an

understanding of the invention, is printed on designated areas of the carrier 12 as it passes through the printer. The printed material emerging from the printer is collected in folded or fan-form to form a printed pack 34.

5 In a subsequent phase the printed pack 34 is fed through an applicator 36 together with foil 38 which is drawn from a reel 40. Pressure and heat are applied to the document or carrier 12 and the foil is bonded to what is referred to herein as an upper side of the carrier 12. The bonded material emerging from the applicator is collected in folded or fan-form in a pack 42.

10 The laminate assembly 10 is provided in the form of a reel 44 of the material. The carrier material 14 is removed from the laminate sheet 16 and the sheet 16 is drawn with the adhesive 18 uppermost, together with the carrier 12, through a laminator 46. The adhesive 18 is brought into contact with what is referred to herein as an underside of the carrier 12, in the laminator, and the carrier 12 is bonded to the laminate sheet 16 by heating these materials to a  
15 temperature of the order of 100°C and simultaneously applying substantial pressure to the materials. The application of pressure removes wrinkles or creases in the laminate sheet and also helps to expel small air bubbles which may be trapped between the carrier 12 and the sheet 16. The high  
20 temperature on the other hand causes the adhesive 18 to cure substantially instantaneously. In so doing the sheet 16 is bonded in a permanent fashion to the carrier 12.

The carrier 12 and the bonded laminate sheet 16 are collected in the form of a reel 48 and, in a subsequent step 50, scratch foil, of a kind known in the art, is applied over the laminate sheet 16 to obscure predefined portions of the information which was printed on the carrier 12 by the printer 32. In a following step 52, the carrier 12 with the bonded laminate sheet 16 is cut into a plurality of security cards 54 which are ready for use.

As has been pointed out the use of the adhesive referred to, which is heat cured, leads to the laminate sheet 16 being bonded to the carrier 12 in a permanent fashion. In other words it is not possible to detach the laminate sheet from the carrier by heating these components nor is it possible to insert a blade or similar slender and sharp device between the laminate sheet and the carrier so as to detach the laminate sheet from the carrier in a manner which allows the security cards to be misused.

The security cards 54 exhibit enhanced security features compared to security cards wherein the laminate sheets are bonded to the carrier using contact type adhesives.



CLAIMS

1. A method of making a security card which includes the steps of applying information to a carrier, and securing a laminate, over at least some of the information, to the carrier using a heat-curable medium.
- 5 2. A method according to claim 1 wherein the heat-curable medium is a low density polyethylene adhesive.
3. A method according to claim 1 or 2 wherein the heat-curable medium is carried by the laminate which is backed by carrier material.
- 10 4. A method according to claim 3 wherein the carrier material includes terra-phthalate.
5. A method according to any one of claims 1 to 4 wherein the laminate includes ethyl vinyl acrylic.
- 15 6. A method according to any one of claims 1 to 5 wherein the heat-curable medium is cured by being exposed to a temperature in excess of 80°C.
7. A method according to claim 6 wherein the temperature is of the order of 100°C.

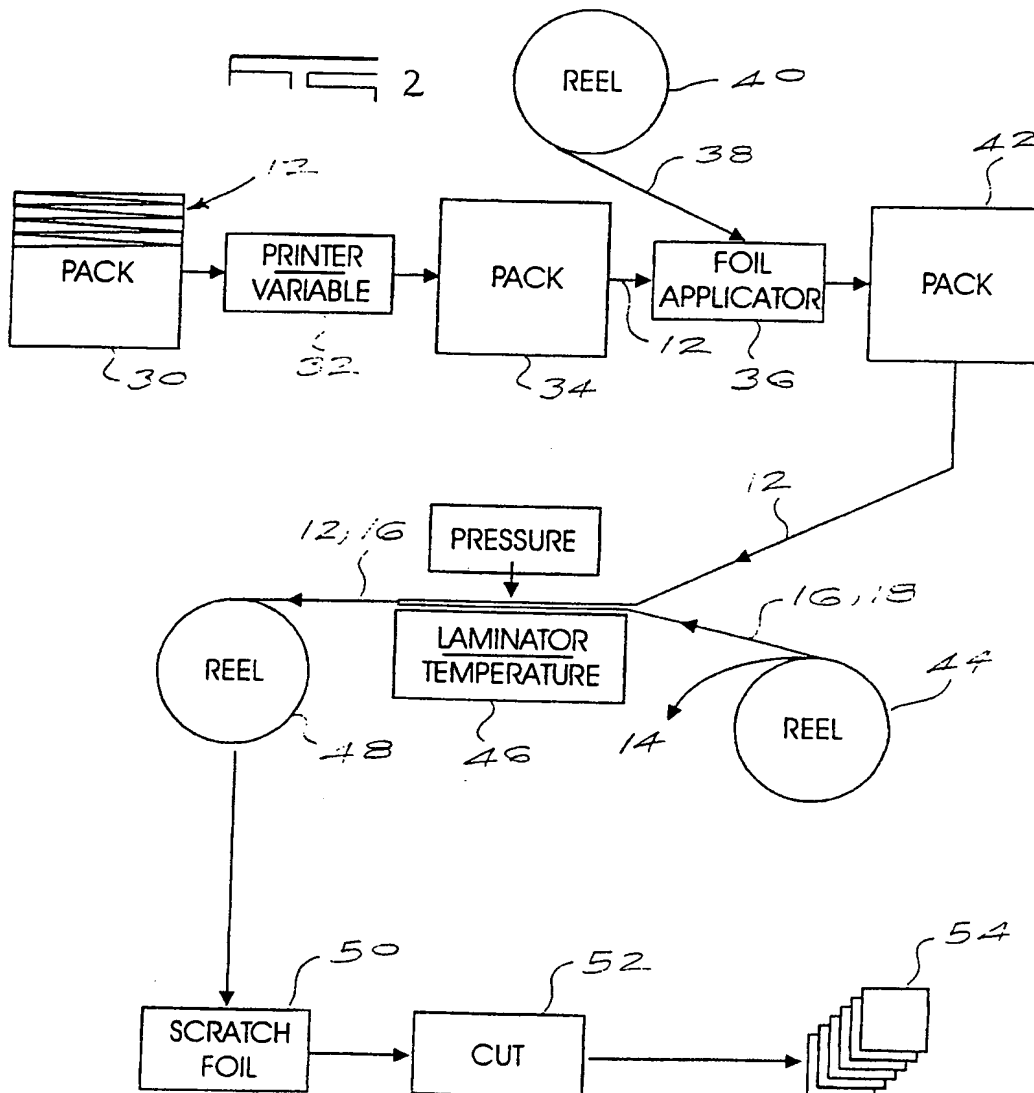
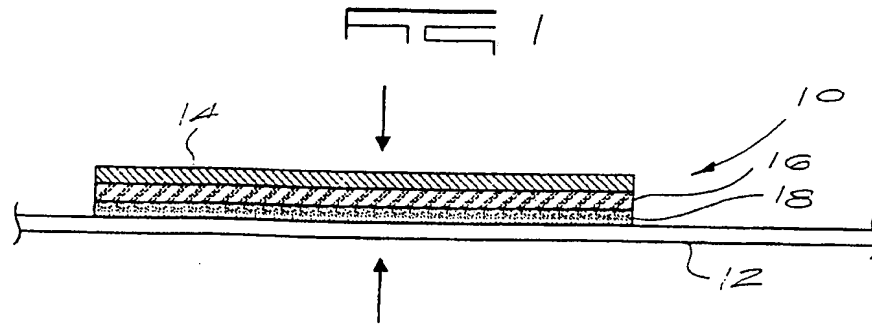
8. A method according to claim 6 or 7 wherein pressure is applied to the laminate and the carrier while the heat-curable medium is curing.
9. A method of making a security card substantially as hereinbefore described with reference to the accompanying drawing.
- 5 10. A security card made by the method of any one of claims 1 to 9.
11. A security card which includes a carrier, information on the carrier, and a transparent laminate which is bonded to the carrier, over at least some of the information, by means of a heat-curable medium.
- 10 12. A security card according to claim 11 wherein at least some of the information is obscured by means of a foil which is secured to the laminate.
13. A security card substantially as hereinbefore described with reference to the accompanying drawing.
- 15 14. A security card which includes an information bearing carrier, a transparent laminate which is bonded to the carrier, over at least some of the information, by means of a heat-curable medium, and a scratch foil which is secured to the laminate to obscure at least some of the information.

Dated this 4<sup>th</sup> day of September 2002.

A handwritten signature in black ink, consisting of stylized initials followed by a long horizontal stroke.

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